

# **CONSTRUCTION OBSERVATION MANUAL** **(C.O.M)**



**CITY OF CONCORD**  
**COMMUNITY DEVELOPMENT DEPARTMENT**  
**ENGINEERING SERVICES DIVISION**  
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**DEFINITIONS**

The following definitions shall apply throughout this document:

- ❑ City: City of Concord, New Hampshire USA
- ❑ City Project Manager (CPM): City representative responsible for the overall project management.
- ❑ Chief Inspector: City employee providing management of all on site construction observation representatives under the direction of the CPM.
- ❑ City Inspector: City employee providing on site construction observation under the direction of the Chief Inspector and CPM.
- ❑ Construction Observation Representative (COR): Individual responsible for construction monitoring as appointed by the CPM. COR could be City Inspector, Chief Inspector or Engineering Consultant.
- ❑ Engineering Consultant: Private engineering firm contracted by the City to provide on site construction observation under the direction of the Chief Inspector and CPM.
- ❑ Owner/Developer: Person or company financially responsible for the proposed development.
- ❑ Engineer: The person or company representing the Owner/Developer who is responsible for the engineering of the proposed development in accordance with the approved plans.
- ❑ Contractor: The person or company representing the Owner/Developer who is responsible for the construction of the proposed development in accordance with the approved plans.
- ❑ Construction Observation Escrow (COE) or Inspection Fee Deposit: Monies placed in escrow with the City to cover all costs related to construction observations.
- ❑ Construction Layout: Establishment and maintenance of all horizontal and vertical layout control, bench marks and structure locations to assure that all improvements will conform to the locations, lines, levels and grades as indicated on the approved plans.
- ❑ Approved Plans: Complete set of drawings demonstrating the overall design intent and layout of the proposed improvements prepared by the Engineer and approved appropriate City staff and signed by the City of Concord Planning Board.

## **INTRODUCTION**

The purpose of this ***Construction Observations Manual*** (C.O.M.) is to present the overall intent and procedures related to construction monitoring in the City of Concord. The procedures are based upon the City of Concord Zoning Ordinance, Subdivision Regulations, Site Plan Regulations and Construction Standards as well as all applicable Federal & State regulations. Construction observations will be performed on various types of projects including, but not limited to:

- ❑ Site Development (including Private)
- ❑ Subdivisions (including Private)
- ❑ Roadway and Utility Improvements

The City of Concord Community Development Department, Engineering Services Division will assign a City Project Manager (CPM) to the project. The CPM will assign a Construction Observation Representative (COR) to act as the City's representative on site.

The City of Concord Community Development Department, Engineering Services Division has City Inspectors and Engineering Consultants who will provide construction observations of all land development involving infrastructure improvements. The C.O.M briefly outlines the organization, communication and relationships involved in the construction monitoring process including but not limited to the City Departments, Owner/Developer, Engineer and Contractor.

After this manual has been presented, reviewed and discussed at the project preconstruction meeting, all interested parties will sign and date the "C.O.M Project Signatures" page located at the end of this document (page 14), acknowledging receipt and understanding of the document.

If specific project questions, concerns or comments arise from this document, the Owner/Developer is responsible to notify the City of Concord Community Development Department, Engineering Services Division in writing of each specific question, concern or comment prior to the start of construction. If necessary, an additional meeting of all interested parties will be held to address each specific question, concern or comment.

**PRECONSTRUCTION MEETING**

No preconstruction meeting will take place until the following minimum requirements have been established:

1. Project plans have been approved by all applicable City Departments and signed by the Planning Board.
2. All applicable project permits have been obtained from all local, state and federal agencies and are on file with the City.
3. All applicable project financial guarantees have been accepted and are on file with the City.
4. All application, plan review and permit fees have been paid to the appropriate City Departments.
5. Construction Observation Escrow (Inspection Fee Deposit) paid to the City.

A preconstruction meeting is mandatory. The Owner/Developer shall request a preconstruction meeting with the City of Concord Community Development Department Engineering Services Division prior to the start of construction. The City Project Manager will schedule the preconstruction meeting date, time and meeting location. The following interested parties shall be invited to attend the meeting:

- ☐ All City Departments affected by the proposed project
- ☐ City Project Manager
- ☐ Construction Observation Representative
- ☐ Project Owner/Developer
- ☐ Project Engineer/Surveyor
- ☐ Project Contractor
- ☐ All Utility Companies affected by the proposed project

At least fifteen (15) working days prior to start of construction, the Project Owner/Developer shall notify the City of Concord in writing of the date and time when the proposed construction will start. Construction notification will be addressed to:

City Engineer  
Engineering Services Division  
Community Development Department  
City of Concord - City Hall  
41 Green Street  
Concord, New Hampshire 03301

All preconstruction meetings will take place at City Hall. The overall purpose and intent of the preconstruction meeting will include but not be limited to the following:

1. Introductions
2. Design, concept, scope and objectives
3. Approved plans and City Construction Standards
4. Owner/Developer to provide project contact list & emergency numbers
5. Project organization, responsibilities & communications
6. Construction sequence and schedule
7. Project Superintendent: named & assigned to be on site throughout the course of construction
8. Project permitting & Special Interests
9. Coordination & notification of all affected Utility Companies
10. Access to Work
11. Layout of Work
12. Construction Observations
13. Field Changes
14. Testing
15. Submittals/shop drawings/certificates of compliance
16. Construction Observation Checklist Worksheet
17. Requirements of Project Acceptance (Final Inspection, As-builts, etc.)

**PROFESSIONAL SERVICES**

Construction observations are considered professional services and will be provided by the City of Concord. The Owner/Developer, Engineer or Contractor will not be permitted to provide independent construction observation services for the City. The CPM will appoint a COR and together with the Chief Inspector, oversee all construction observations.

The COR shall visit the site at intervals appropriate to the stage of construction, or as otherwise agreed to in writing by the City and the Engineering Consultant (if utilized), in order to observe the progress and quality of the work completed by the Contractor. Such visits and observations are not intended to be an exhaustive check or a detailed inspection of the Contractor's work but rather are to allow the COR, as an experienced professional, to become generally familiar with the work in progress and to determine, in general, if the work is proceeding in accordance with the approved plans.

**NOTIFICATION**

The Owner/Developer is responsible to provide the City & COR with a complete project schedule at the preconstruction meeting. During the course of the work, if the Contractor requires a schedule change, the Contractor must provide a revised schedule for review and comment to the City & COR prior to the proposed change.

The Owner/Developer is responsible for all construction observation requests. The Owner/Developer will request construction observations at least 48 hours in advance. Failure to properly communicate the construction schedule and observation requests with the COR will decrease the likelihood of timely construction observations.

Construction observation cancellations must be received by the COR at least 24 hours prior to the scheduled observation or will be subject to minimum charges. In the event the construction observation is not notified that construction observations are not required, a minimum charge of up to 2 hours may be assessed to the project Owner/Developer.

**CONSTRUCTION OBSERVATION ESCROW/INSPECTION FEE DEPOSIT**

The Owner/Developer is responsible to provide a "Construction Observation Escrow" or "Inspection Fee Deposit" (COE) to the City prior to the preconstruction meeting. The City will establish the amount of the COE and oversee the payment of all construction observations from the COE. If, the COE amount is insufficient to cover the project construction observation from the preconstruction meeting through project closeout and public acceptance, the City may require the Owner/Developer to provide additional money to be added to the COE.

No construction observations will take place without sufficient COE in place at the City.

All unused COE will be returned to the project Owner/Developer upon project closeout and public acceptance.

## **ACCESS TO WORK**

The Owner/Developer shall provide the City and the COR safe and full access to all project construction operations at all times.

## **CONSTRUCTION LAYOUT**

The Owner/Developer is responsible to provide construction layout for the project. An Engineer or Land Surveyor, licensed in the State of New Hampshire shall perform initial project layout in accordance with the approved plans. A competent skilled foreman shall perform subsequent project layout. The Owner/Developer may be required to enlist an licensed Engineer or Land Surveyor to reestablish project centerline/layout as construction continues to ensure compliance with approved plans

Line, grade and location of roadways, treatment swales, utility easements, sidewalks, guardrail, curbing, drainage, utilities and no cut zones shall be provided with staked offsets. Project layout shall be maintained throughout the duration of the project. The City or COR has the right to stop construction if he/she observes the layout is either missing or incorrectly staked. Layout and grade stakes shall be clearly marked and identified.

## **OBSERVATION OF WORK**

The City or COR shall observe the progress and quality of the work completed by the Contractor. The construction observation representative as an experienced professional, shall become generally familiar with the work in progress and determine, in general, if the work is proceeding in accordance with the approved plans and all applicable regulations. The Construction Observation Representative will be responsible to perform but not limited to the following tasks:

- ❑ **Project Review:** Become familiar with approved plans, permits, City specifications and Contractor submittals as necessary.
- ❑ **Construction observations:** The field conditions, complexity, schedule, communications and quality of construction will determine the frequency and duration of construction observations.
- ❑ **Project Documentation:** Prepare daily reports, photography, field measurements, construction notification memos, bi-monthly summary reports & meeting memos as necessary.
- ❑ **Control City Water System:** Control access and use of the City water supply system. Only authorized City representatives shall operate water valves and shutoffs.

Construction observation **SHALL NOT** imply partial or final acceptance of the project in part or as a whole. The Owner/Developer, Engineer and Contractor are responsible for complete, accurate and timely project completion in accordance with the approved plans.

The Construction Observation Representative (COR) shall review project submittals and make recommendations to CPM for approval or rejection. Project submittals may include product data, material test results, certificates of compliance, and other data, which the Contractor is



required to submit, but only for the limited purpose of checking for conformance with the approved plans.

### **TESTING**

The COR is responsible for monitoring all independent testing with respect to material, compaction and utilities to determine compliance with all applicable City and State regulations including but not limited to the following: materials, drainage, sanitary sewer and water. The Owner/Developer is responsible for all testing costs associated with the project construction. The COR or CPM may require additional testing as deemed necessary including but not limited to the following: gradations, compaction, vibration, noise, and pavement/concrete testing.

### **FIELD CHANGES**

The Owner/Developer may suggest/discuss minor project changes in the field with the construction observation representative, which do not alter the design intent, compromise public safety and comply with all applicable City regulations. Minor changes are to be documented in the field by the COR and included on the “As-Built” plans prepared by the Owner/Developer’s hired surveyor.

The Owner/Developer may not suggest/discuss project changes in the field with the construction observation representative, which will alter the basic design intent or affects public safety (i.e., changing a proposed block retaining wall to a stone wall) and compliance with all applicable City regulations. Any such proposed field changes must be submitted in writing to the City of Concord Community Development Department Engineering Services Division for review and comment and may require Planning Board approval.

### **PROJECT CLOSE OUT**

The project Owner/Developer is responsible to schedule an on site project closeout meeting upon substantial completion of construction. The purpose of the meeting will be to prepare a punch list of remaining work items. The COR will prepare the punch list from outstanding works items discussed and filed confirmed. The project close out meeting should include but not be limited to the following interested parties:

- ❑ Project Owner/Developer
- ❑ Project Engineer/Surveyor
- ❑ Project Contractor
- ❑ City Project Manager & applicable City representatives
- ❑ Construction Observations Representative

Upon final completion the Owner/Developer shall request in writing the City’s acceptance of the required public improvements. Final acceptance/dedication of public improvements may require action by the Concord City Council. Final acceptance of the improvements needs to be addressed to:

City Engineer  
Engineering Services Division  
Community Development Department  
City of Concord - City Hall  
41 Green Street  
Concord, New Hampshire 03301

### **CONSTRUCTION OBSERVATION CHECKLIST**

The following section briefly describes the construction observation checklist. This checklist is intended as a tool to aid the Owner/Developer monitor construction progress.

#### **Soil Erosion & Sediment Control Methods (S.E.S.C)**

The COR shall monitor & observe the implementation of all project Soil Erosion & Sediment Control Methods prior to the start of clearing & grubbing construction.

#### **Noise and Dust Control**

The COR shall monitor & observe the activities of noise and dust control throughout the duration of the project to ensure that the Contractor is in compliance with the Ordinances set forth by the City Council (See attached). If the COR observes that the Contractor is not in compliance, the COR shall contact Engineering Services immediately and the necessary action will be taken.

#### **Wetland Delineation**

The Owner/Developer shall be responsible for the delineation of all wetlands located on the project prior to any construction activity on site. The wetlands shall be clearly marked with the appropriate placards available through the Planning Department. The COR shall inspect the site to ensure that the Owner/Developer has delineated the wetlands.

#### **Clearing & Grubbing**

The Owner/Developer shall remove all topsoil from roadway limits and stockpile for reuse on project. The Owner/Developer shall not mine topsoil and remove from the project; topsoil shall be reused on the project to ensure minimum topsoil depths as shown on the approved plans and City Construction Standards.

The Owner/Developer shall follow all local, State and Federal Regulations when disposing stumps and other debris. No stumps or other debris shall be disposed of adjacent to wetlands, roadways, or building foundations. The COR may require submittal of a materials disposal plan.

The COR shall be provided the opportunity to observe and shall inspect clearing & grubbing prior to the start of subgrade construction.

#### **Subgrade Construction**

Subgrade construction (fill operations) shall not begin until existing ground has been grubbed, stripped and removal of unsuitable material has been completed as required by the approved plans or COR. COR shall observe all subgrade construction.

Blasting

The Owner/Developer shall prepare and submit to the COR a blasting plan and preblast survey per the requirements of Engineering Services. A preblast meeting shall be conducted prior to the start of any blasting activities. The Contractor is responsible for notifying the fire department of the proposed blasting area.

Utility Construction

The COR shall observe all utility construction including but not limited to drainage, water and sanitary sewer construction. The COR shall observe all utility main and utility service connections. The COR with the assistance of the Contractor shall document ties to key utility components. The COR shall submit the documentation to Engineering Services upon final completion of the project.

No work shall be permanently back-filled until construction observations have been performed including but not limited to the excavation, material placement, compaction and back-filling operations related to utility construction.

The COR shall observe construction of private utility infrastructure for compliance with approved plans and City Construction Standards. The Owner/Developer will be responsible for maintaining as-built plans of all private utility construction for inclusion into final project as-built plan.

In general, all utility construction shall conform to the requirements and specifications of the appropriate utility company and the City Construction Standards. All public and private utility construction shall be included in the as-built plans as required by the City Construction Standards.

Only City authorized personnel shall operate water valves and shutoffs. Individuals operating valves, shutoffs and connecting temporary water lines to hydrants without permission will be fined \$1,000.00.

Subgrade Preparation

Subgrade preparation may not commence until all underground utility construction has been completed within the project right of way.

The COR shall observe subgrade preparation for material, line, grade, crown, compaction and conformance with the approved plans prior to the start of gravel placement. Compaction testing shall be performed as required by the COR.

Bank Run Gravel Base Placement

No select materials shall be placed until all underground utility work has been constructed and has passed all required testing (video, pressure, deflection, etc).

The Owner/Developer is responsible to provide the COR with a sieve and proctor analysis report of the proposed gravel base material at least 48 hours prior to the start of Bank Run gravel base placement. If the Contractor does not adhere to the 48 hour submission, the COR has the authority to delay placement of the material. Additional sieve analysis of the gravel base material shall be performed during placement operations at the discretion of the COR. Compaction testing shall be performed as required by the COR.

The COR shall observe Bank Run gravel base placement for material, shape, grade, crown, compaction and conformance with the approved plans prior to the start of crushed gravel placement.

#### Crushed Gravel Placement

The Owner/Developer is responsible to provide the COR with a sieve and proctor analysis report of the proposed crushed gravel material at least 48 hours prior to the start of crushed gravel placement. If the Contractor does not adhere to the 48 hour submission, the COR has the authority to delay placement of the material. Additional sieve analysis of the crushed gravel material may be performed during placement operations at the discretion of the COR. Compaction testing shall be performed prior to paving operations and at the discretion of the COR.

The COR shall observe crushed gravel placement for material, shape, grade, crown, compaction and conformance with the approved plans prior to the start of paving operations.

#### Paving Operations

The Owner/Developer is responsible to provide the COR with pavement batch slips as paving progresses.

The COR shall be present to observe the entire paving operation process for conformance with the approved plans and City construction standards.

#### Curbing and Sidewalk

The COR shall observe the construction and installation of required curbing and sidewalks for compliance with approved plans, ADA requirements and City Construction Standards.

#### Driveways

The COR shall observe the construction and installation of all curb cuts and driveways for compliance with approved plans, Driveway Permits, City Construction Standards, and Subdivision Regulation.

#### Traffic Control Devices

If the proposed project involves construction within the travel way, the Contractor is responsible for preparing a Traffic Control Plan (TCP). The plan must be in accordance with the latest edition of the MUTCD and must be prepared by a qualified traffic control designer. The Contractor cannot design the TCP. The TCP must be submitted to Engineering Services at least two (2) weeks in advance prior to the work being performed.

The COR shall observe the construction of traffic control devices for compliance with the approved plans including but not limited to the following: pavement markings, street signs, signalization, traffic calming devices, curbing and sidewalks.

#### Turf Establishment

The COR shall observe turf establishment for compliance with approved plans and City Construction Standards.

Street Trees and Landscaping

The COR shall observe the installation and planting of the required street trees for subdivision projects for compliance with the approved plans, City Construction Standards and Subdivision Regulations. The COR shall observe the installation and planting of all landscape plantings for compliance with approved site plans.

Monumentation

A Land Surveyor licensed in the State of New Hampshire shall provide certification of the material and placement of monuments to the City as indicated on the approved plans. All monumentation shall be clearly staked after placement.

The COR shall observe the material & placement of monumentation for compliance with the approved plans.

Miscellaneous Site Features

The COR shall observe the construction and installation of street lights, site lighting, guardrails, retaining walls, dumpster pads and screens, traffic signage, traffic striping, fencing and any other features required for compliance with approved plans, City Construction Standards, Subdivision Regulations, and Site Plan Regulations.

As-Built Plans

The Owner/Developer shall be responsible for the preparation of an As-Built construction plan for all public improvements as discussed in the Construction Standards. The As-Built must be certified by a Land Surveyor licensed in the State of New Hampshire.

The Owner/Developer must submit the As-Built drawing to Engineering Services, at least two (2) weeks in advance prior to the Final Walkthrough.

Final Walkthrough

The Owner/Developer shall be responsible for scheduling a final walkthrough to review the completed project and compile any punchlist items. The COR is responsible for compiling all punchlist items and a written summary shall be distributed to all involved parties. The COR is also responsible for ensuring that the punchlist items are completed in accordance with the approved design drawings and the City Construction Standards.



## CONSTRUCTION OBSERVATION CHECKLIST WORKSHEET



### PROJECT INFORMATION:

Project: \_\_\_\_\_ Project Location: \_\_\_\_\_  
 Project Owner/Developer: \_\_\_\_\_ Project Contractor: \_\_\_\_\_

Construction Item	Date	Signatures		Comments
		Contractor	C.O.R.	
S.E.S.C.				
Clear & Grub				
Subgrade Const.				
Blasting				
Utility Const.:				
Sanitary Sewer				
Drainage				
Water				
Private Utilities				
Subgrade Prep.				
Gravel Base				
Crushed Gravel				
Paving:				
Base Paving				
Top Paving				
Traffic Control:				
Pvt. Markings				
Signage				
Traffic Signals				
Street Lights				
Curbing				
Sidewalks				
Driveways				
Turf Establishment				
Landscaping				
Monumentation				
As-built Plans				
Other:				

**C.O.M. PROJECT SIGNATURES**

Project: \_\_\_\_\_ Project Location: \_\_\_\_\_

Project Owner/Developer: \_\_\_\_\_ Date: \_\_\_\_\_

The following interested parties have received and reviewed this document at a preconstruction meeting for the above referenced project and hereby acknowledge receipt, review and acceptance of all requirements herein this document, not in part but in whole, by signing below:

\_\_\_\_\_  
City of Concord\_\_\_\_\_  
Date\_\_\_\_\_  
Construction Observation Representative\_\_\_\_\_  
Date\_\_\_\_\_  
Project Owner/Developer\_\_\_\_\_  
Date\_\_\_\_\_  
Project Engineer/Surveyor\_\_\_\_\_  
Date\_\_\_\_\_  
Project Contractor\_\_\_\_\_  
Date\_\_\_\_\_  
Utilities\_\_\_\_\_  
Date\_\_\_\_\_  
Utilities\_\_\_\_\_  
Date\_\_\_\_\_  
Utilities\_\_\_\_\_  
Date